FUEL CELL STACK HAVING AN IMPROVED
CURRENT COLLECTOR AND INSULATOR

Abstract of the Disclosure

A fuel cell stack (10) includes a reaction portion (20) having an end cell (12) secured adjacent to a current collector (30). The collector (30) has a sensible heat no greater than a sensible heat of the end cell (12) and an electrical resistivity no greater than 100 micro-ohms centimeters. An insulator (40) is secured adjacent the collector (30) and has a thermal conductivity that is no greater than 0.500 Watts per meter per degree Kelvin. Because of the low sensible heat of the current collector (30) and low rate of heat transfer of the insulator (40), heat does not readily leave the end cell (12) resulting in a rapid heating of the end cell (12), thereby avoiding freezing and accumulation of product water in the end cell (12) during start up in subfreezing conditions.